DOCUMENT RESUME

ED 257 828 SP 026 241

AUTHOR Floden, Robert E.
TITLE The Role of Rhetoric in Changing Teachers' Beliefs. Occasional Paper No. 78.
INSTITUTION Michigan State Univ., East Lansing. Inst. for Research on Teaching.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE Dec 84
CONTRACT 400-81-0014
NOTE 34p.
AVAILABLE FROM Institute for Research on Teaching, College of Education, Michigan State University, 252 Erickson Hall, East Lansing, MI 48824 ($3.25).
PUB TYPE Information Analyses (070) -- Viewpoints (120)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Attitude Change; Educational Research; *Persuasive Discourse; Research Reports; *Research Utilization; *Teacher Attitudes; *Teacher Education Programs; *Technical Writing
IDENTIFIERS Research Practice Relationship

ABSTRACT

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Published By

The Institute for Research on Teaching
252 Erickson Hall
Michigan State University
East Lansing, Michigan 48824-1034

December 1984

This work is sponsored in part by the Institute for Research on Teaching, College of Education, Michigan State University. The Institute for Research on Teaching is funded primarily by the Program for Teaching and Instruction of the National Institute of Education, United States Department of Education. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the National Institute of Education. (Contract No. 400-81-0014)

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Abstract

The author critically reviews recent suggestions from Buchmann, Fenstermacher, and Zumwalt that teachers draw their own conclusions from research findings, rather than accepting the conclusions researchers draw. Drawing on Gusfield's analysis of the language of social science, the author considers the suggestions as proposals for the rhetoric that should be used in research reporting. It is argued that acknowledging the importance of teachers' rationality does not require researchers to abandon drawing implications and attempting to persuade teachers to accept those implications.

THE ROLE OF RHETORIC IN CHANGING TEACHERS' BELIEFS[1]

Robert E. Floden[2]

William James (1899/1958), talking to teachers about psychology, confessed that

> acquainted as I am with the height of some of your expectations, I feel a little anxious lest, at the end of these simple talks of mine, not a few of you may experience some disappointment at the net results. (p. 22)

Whatever those teachers felt after listening to James, other practitioners have certainly been disappointed by the results of research on teaching in the ensuing decades. For teachers, the outcome of looking at research on teaching has often been like that of drinking coffee and eating donuts: a euphoric rush of excitement followed by sudden depression. The current scarcity of support for research on teaching (and educational research in general) may be partly attributable to the apparently minor impact of such efforts in the post-Sputnik era (Clifford, 1973). The research community has responded by suggesting alternative research models and methods (e.g., information-processing models of teacher cognition, ethnographic studies of classroom instruction) and by claiming that impact is imminent (e.g., Koehler, 1983).

The criticism goes beyond educational research to encompass most of social science. Problems of crime, poverty, and alienation seem untouched by

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[1] This paper has been accepted for publication in Teaching and Teacher Education.

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the work of economists and sociologists. Optimistic predictions of scientific research solutions are inevitably followed by continuing struggles of practical implementation. Scientists in all fields are reconsidering the proper conduct and realistic role of social science in the improvement of practice.

Few would deny that American elementary- and secondary-school teaching can and should be improved. What role research on teaching can and should play in such improvement is less clear. The National Institute of Education and some other funding agencies communicate their expectation that research will lead to visible positive changes in what goes on in schools. But several leading figures in education have raised questions about the specific ways in which people have attempted to use research to change practice (e.g., Buchmann, in press; Fenstermacher, 1979; Zumwalt, 1982), whether research has had significant practical consequence so far (e.g., Eisner, 1984), and whether it makes sense to expect practical consequences to result from research directly at all (e.g., Phillips, 1980).

The federal government has taken an active role both in supporting research and in initiating and supporting work designed to use research results to change teaching practice. Often following an idea of how agricultural research has changed farming practice, numerous attempts have been made to disseminate research findings, put research into practice, and so on (House, 1974). The hope that research will influence teaching practice is complemented by placing a high value on research-based teaching practice.

Leaders of teacher education programs are attracted by the idea that their programs could be based on specific, well-defined teaching competencies. The Competency Based Teacher Education (CBTE) and Performance Based Teacher Education (PBTE) movements gained wide popularity during the late 1960s and

early 1970s (for a critical account, see Hertzberg, 1976). Teacher educators were so successful at generating lists of competencies, however, that they soon had to face the question of determining rational bases for competencies to be included in their programs. Research on teaching was seen as the place to look for such a basis. As Schalock put it in 1973:

> At present . . . we . . . have no firm evidence that one set of competencies is more productive of learning in children than another set, that one level of competency definition is any better than another level . . . . Questions of this nature can be answered only through research. (quoted in Houston, 1974, p. 6)

Hence the phrases "research-based teacher training" and "the knowledge base in teacher education" are liberally scattered through papers and presentations in teacher education. The research base, typically cast as process-product research on teaching (e.g., Brophy & Good, in press; Medley, 1977), was to define the competencies to be achieved in teacher preparation and inservice teacher training.

Like all areas of education, teacher education is not homogeneous. Any specific description of a "typical" research-based teacher-preparation or inservice-training program will fit few actual programs. To analyze broadly defined approaches to teacher education, however, writers have sketched simplified examples of programs that embody distinctly different approaches. Perhaps no existing teacher preparation program or inservice program follows one or another approach exclusively. It may well be that some mix of types is desirable. For simplicity, however, this paper will consider the strengths and weakness of "pure" types, rather than trying to determine the (possibly synergistic) consequences of mixing types. The two "pure" types are research-based training and educational discussion of research.

Research-Based Training

First consider research-based teacher training. In this approach, conclusions are drawn from research on teaching, typically process-product research, about the ways in which teachers ought to act. These desired ways of acting are then written as the competencies teachers require, and teachers are trained to achieve these competencies.

It is not difficult to find examples of teacher preparation programs that train teachers to perform in ways found to be associated with student learning. Such teacher training is still in evidence, often with the endorsement of researchers. Rosenshine, for example, is a major proponent of the Direct Instructional Model as a summary of desired teacher performances. In an article with Meyers, he gives the following description of a teacher training program based on the model:

> Teachers are taught through the model-lead-test procedure, instruction is recycled until 100 percent mastery is achieved, the trainer obtains attention quickly and proceeds at a brisk pace, reinforcement is frequent and specific, and the trainees are given active practice through choral responses in the group setting and through individual turns in small groups . . . . Any mistakes that the teachers make are corrected by the trainer again modeling the behavior then leading the teachers, and then having the teachers practice alone. This training loop continues until the skill is mastered. (Rosenshine & Meyers, 1978, p. 269)

Such an approach to teacher preparation or inservice training has been criticized by a variety of educational scholars. Consideration of these problems has led to recommendations for replacing research-based teacher training with educational discussion of research. The specific formulations of the latter approach are, however, somewhat problematic.

Two lines of criticism have been leveled against research-based teacher training. The first objects to teachers' accepting conclusions they have not themselves drawn--conclusions drawn by educational researchers. The second

argues that, in teacher preparation and staff development, education is preferable to training.

It's better to draw your own conclusions. The content of research-based teacher training is the conclusions drawn by educational researchers, especially researchers on teaching. Critics have discussed four problems with getting teachers to accept the conclusions researchers draw, suggesting that it would be better for teachers to draw their own conclusions.

First, they argue that conclusions drawn in existing (especially process-product) research rely on an overly narrow view of education. Through focus on learning that can be easily tested with commonly available achievement tests and use of an idea of teaching as a coordinated assembly of instructional skills, research conclusions tend to downplay some important aspects of education (e.g., teachers' curriculum development, students' grasp of abstract concepts). Accepting the conclusions researchers draw involves accepting that narrow definition without even considering that other definitions are possible. Buchmann (1983a) makes the stronger claim that sometimes consideration of a broad range of educational aims creates situations in which some research knowledge ought to be ignored:

> As a basis for action, the belief that students can learn must be upheld whatever test scores, the opinions of parents, and even the firsthand experiences of the teacher may imply to the contrary. This triumph of hope over experience is justified--not because it fits with the data but because it can create new desirable facts. (Buchmann, 1983a, p. 4)

Second, the training approach tends to give teachers mistaken confidence in the certainty of the research results. Telling someone what to do creates the impression that the teller knows what is best. But all research conclusions are uncertain, and educational research provides no exceptions. The emphasis on indirect teaching supported by Flanders' research (1970), for

example, has given way to an emphasis on direct instruction. The conclusions educational researchers draw are partially shaped by their beliefs about the essence of good education; this strong dependence on values has led to special uncertainty in the conclusions from research on teaching (Dunkin & Biddle, 1974).

Third, training teachers to follow research conclusions is of little use, because no research conclusion will be appropriate for all teaching circumstances. The complexity of the context and process of teaching makes it virtually impossible to find specific prescriptions for teachers that would apply to all situations. "Research is unlikely to produce universally applicable laws and those produced will only be selectively implemented anyway" (Zumwalt, 1982, p. 239). As a result, teachers must have more than the ability to smoothly execute a set of teaching skills. They must have the ability to judge when a particular approach is most likely to be successful, an ability that requires knowing much more about research studies than the conclusions.

Finally, preservice preparation cannot hope to produce polished professionals. The time available does not begin to be adequate for providing all the things that would help teachers provide outstanding instruction. Teachers must know how to learn more and be inclined to do so. Training in conclusions tends instead to give the impression of mastery of the craft.

Should teachers be well educated or highly trained? A second criticism of research-based teacher training is that teachers should be educated, rather than trained, whether or not research on teaching figures in the program. Education is often contrasted with training (or, in more extreme cases, indoctrination), in which students (in this case preservice or inservice

teachers) are led to have certain beliefs or skills without the additional justification and rationale associated with education. In education, the rationality of the students is acknowledged, both in how the students are taught and in what they are taught. In process, "the teacher is prepared to *explain*, that is, to acknowledge the student's right to ask for reasons and his concomitant right to exercise his judgment on the merits of the case" (Scheffler, 1973, p. 62). In content, emphasis is on increasing students' abilities to make well-founded independent judgments, rather than on providing them with answers. The "fundamental educational ideal is to make as pervasive as possible the free and critical quest for reasons, in all realms of study" (Scheffler, 1973, p. 62).

Why should teachers be educated? Several different reasons have been given.

First, if teachers are trained to produce specific performances, then their interest in teaching may decline as they attain mastery. The teacher trained in specific skills of teaching will find initial work experiences challenging, if not overwhelming. With experience, however, the coordination of different tasks becomes habitual, and the skills are acquired to the point that little effort is required to effectively perform them. That is the point at which the mid-career slump may begin. If, in contrast, the teacher's preparation emphasized the examination of evidence and reasoning about the connections between means and ends, stagnation would be less likely to occur. Teachers have sources of new evidence in their own teaching and in the research work conducted by others. Rather than teaching always being a repetition of last year's activities, the teacher could be constantly readjusting classroom performances in the light of new evidence or new

insights gained by reflecting on the evidence. (See Dewey, 1904, for a similar position.)

A second reason for educating teachers is that educated teachers are needed to educate children. The education (as opposed to training) of children would presumably be defended under the general argument given above. The connection to the education of teachers is familiar from assertions that teachers teach in the manner in which they were taught. If a teacher was trained in all preparatory experiences, then that teacher will be inclined to train students.

Finally, one could justify teacher education as a way of adjusting general research results to specific situations. Cronbach (1975) has argued that it is unreasonable to expect to find any universally applicable laws of social science. The only way in which research can be used to inform decisions about a specific situation is for someone knowledgeable about the site to give careful consideration to both the research reports and the characteristics of the site. A teacher trained to produce specific performances may be effective in an average classroom, but ineffective in many real classrooms. While there may be an average gain in getting all teachers to perform in a certain way, individual classes may suffer. A teacher educated to reason about evidence, on the other hand, should be well suited to modify generally effective performances to fit the characteristics of this year's group of students. Although the teacher may not always make the best possible interpretation, preparation that emphasizes the development of reason and consideration of evidence should improve the quality of interpretations made.

Educational Discussions of Research

In response to the criticisms of research-based teacher training, the general direction that has been urged is to replace learning of research conclusions with discussion of research evidence and research studies. The specific means suggested are variations on this general theme.

Fenstermacher (1979, 1980) bases his proposals on Green's definition of education:

> Education, for Green, is largely a matter of transforming a person's subjectively reasonable beliefs to objectively reasonable beliefs. The transformation from subjective reasonableness to objective reasonableness is undertaken by developing the student's capacity to reason and by presenting evidence for or against subjectively reasonable beliefs. (Fenstermacher, 1979, pp. 21-22)

The alternative Fenstermacher proposes is to present research findings to teachers "as evidence . . . to encourage the transformation of teachers' beliefs from subjectively to objectively reasonable" (Fenstermacher, 1979, p. 169). This transformation not only is educative, but it removes the necessity for the researchers to draw causal inferences. The associations discovered can be presented to teachers, who are then allowed to draw their own inferences.

When research findings appear to be at odds with subjectively reasonable beliefs, teachers may or may not change their beliefs. If teachers give serious consideration to the research findings, Fenstermacher believes, this consideration will at least tend to enlarge their understanding and differentiate their perceptions (Fenstermacher, 1980).

Fenstermacher thinks that it may be even better to direct attention away from the specific empirical findings of research toward the concepts that guide and come from research. Rather than learning findings or conclusions, acquiring new concepts gives teachers additional ways of perceiving their work environments. Acquiring new concepts, even more than considering evidence,

acts so as to enlarge understanding and differentiate perceptions. Acquiring a new concept gives teachers a new way to structure their experience, "an insightful and suggestive way to look at and think about the connections between teaching and learning" (Fenstermacher, 1980, p. 134).

Because of existing problems with the use of process-product research, and because of the importance he sees for research acknowledging teachers' intentions, Fenstermacher has argued that a change in research methods is necessary for the improvement of teacher education. Transforming teachers' beliefs, he argued, requires knowledge of current beliefs. Furthermore, no description of teaching and learning can be adequate unless it includes consideration of the beliefs and intentions of teachers and students. Hence he argues for more emphasis on descriptive studies that include attention to mental states and processes.

Zumwalt (1982) concurs with Fenstermacher's suggestion that teachers should consider research findings, rather than conclusions, but also stresses the importance of what the teachers do with these findings. She advocates a deliberative orientation in which research findings are used as the basis of discussions with other teachers about teaching and education. Like Fenstermacher, she holds that if a research finding appears to contradict a teacher's belief about teaching and learning, the teacher need not automatically give up the old belief for the research finding. "When seemingly definitive results are contrary to one's own beliefs, the motivation to delve further is greater" (Zumwalt, 1982, p. 230). Through discussion, teachers learn how to reason about educational problems in general, rather than learning the "right way" to solve a particular teaching problem. Research findings are things to reason about, not things to be taken as certain truth. Reasoning power will, Zumwalt implies, give the abilities to

judge what approach will be appropriate, to continue to learn after completing formal teacher preparation, and to accurately judge how much confidence to put in research.

Although Zumwalt seems to see more problems with the use of process-product research than with the use of descriptive research, she finds both kinds of research on teaching suitable starting points for a deliberative approach to teacher education. For use in educative discussions, she supports conduct of research using both methods of study.

Buchmann (1983a, in press) has constructed an argument similar to that of Fenstermacher and Zumwalt, but she widens the scope of her concern from research-based teacher training to the general conception of putting research knowledge to use. She supports the conduct of educational research in general and research on teaching in particular but believes that research should not be used to persuade people of what to do or to believe. Rather, research should become part of the "conversation" about the subject of interest (e.g., teaching). She also opposes simply trying to get teachers to behave or believe as research tells them to do, but her suggestion as to what should be done is somewhat different from that of Fenstermacher and Zumwalt. She fears that discussions of research results may improperly take the form of arguments. Fenstermacher and Zumwalt place emphasis on the standard model of rational belief, which values clearly supported logical links between conclusions, reasons, and evidence. This emphasis is, Buchmann argues, both too restrictive and too much oriented to the ideal of research, which is truth, in contrast to the ideal of practice, which is wise action.

Emphasis on clear and persuasive argument is too restrictive because it addresses only one aspect of the value of discussion, that of gaining intellectual clarity. But discussion (e.g., of research) has other values as

well. Perhaps the most important of these is the ability to motivate right action--a discussion that inspires people to do good is valuable, even if the arguments in the discussion are not perfectly clear. Motivation to action and clarity may even be goals in tension: Precise argument may have no place for appeals to emotion. At the least, unclarity in itself is not a fatal weakness in a discussion.

> We have no reason to assume that premises that need to be guessed at, terms without clear definitions, oblique references, and beliefs that are not debatable must be associated with wrongheaded ideas or indefensible lines of action. (Buchmann, 1983a, p. 12)

The emphasis on clear presentation of a position in an argument also tends to give improper weight to argumentative skills, skills more likely to be possessed by researchers than by teachers. This advantage, together with the greater social status American society gives to those who work with theory, as opposed to practice, tends to turn discussion of research results into another case of getting researchers to tell teachers what the answers are. Any program that tries to give teachers skills with which to compete on researchers' territory will most likely lead teachers to accept rules of a game in which they are unlikely to be able to win. Moreover, when researchers break the rules, for example by speaking with apparent authority on topics they know little about, teachers are unlikely to call a foul. Instead, teachers may treat this event as an example to be turned into a rule.

Instead of having teachers discuss research, Buchmann proposes having teachers and researchers talk about education. The aim of such conversations is not to apply research knowledge, not to persuade teachers to accept research results, but to have good conversations.

Considering the Reforms

Although there are differences among these recommendations concerning what sort of research should be done and how it should be used, the three authors just discussed seem to agree that descriptive research would be more likely than process-product research to lead to improvement of teacher education, and that teachers should think their own thoughts and draw their own conclusions from research, rather than having researchers decide what teachers should believe and try to change their minds. These two positions have some appeal, especially in the light of the past record of research-based teacher training. The proposed changes themselves deserve careful scrutiny to see what new problems are being exchanged for the old.

Descriptive Studies

Consider the suggestion that descriptive studies that consider teacher and student intentions might be better suited for educative discussions of research. Two sorts of advantage are most obvious. First, descriptive studies, to the extent that they remain descriptive, avoid drawing conclusions about desired changes in teaching practice. Second, the descriptive studies give a more detailed, and in some ways more complete, picture of teaching and learning. What advantages does each of these characteristics bring?

By eschewing conclusions, descriptive studies prevent any straightforward prescriptive use of the research. If the study does not indicate what teachers should do to achieve some goal, teacher preparation programs cannot simply base prescriptions on the researcher's conclusions. Neither can teacher preparation students read the end of the research report to find out what they should do. Deciding what the report suggests about practice requires reading something more than conclusions and requires thought about

what the study means. Consequently, such a study lends itself to Zumwalt's deliberative approach, or Buchmann's conversation, simply because any conclusions to be drawn must be drawn by the reader; the report does not try to persuade the teacher to change in any particular way.

By giving greater detail, a description lends itself to teacher education in two ways. First, the possibility of interesting discussion depends on the existence of complexity: If the character and meaning of events are immediately clear to all, further discussion is redundant. A detailed description allows for a variety of interpretations, each of which may fit with parts of the description but not with others. Second, vivid detail charges a discussion with the emotive power capable of changing minds. The generality may lend itself to academic mastery of concepts, but the mental changes that will bring changes in practice are aided by consideration of compelling examples. As social psychologists have shown (e.g., Nisbett & Ross, 1980), vivid detail is compelling.

Considering these two ways in which thick descriptions lend themselves to a deliberative approach to teacher preparation makes it clear that such methods have no unique ability to serve teacher education. Avoiding drawing conclusions is something that is possible in any study. Educational researchers of all methodological persuasions are often motivated by a desire to improve education. Why else be in education? Desire for improvement implies some idea of what things are to be desired in education. These ideas may creep into descriptive studies as well as process-product studies. When they do, the reader may be tempted to accept the ideas without reflection, copying the teacher activities that seem to be endorsed and avoiding those that have an undesirable cast. Even completely descriptive studies, perhaps a complete, unedited videotape of a reading lesson, may be taken by preservice

students, hungry for how-to-do-it advice, as an implicit endorsement of whatever the teacher happened to be doing.

Process-product studies could likewise avoid drawing conclusions. Indeed some reseafchers may write the implications for practice section out of a sense that it is expected of them rather than out of a desire to do so. The criticism that designing a study that computes correlations between teacher behaviors and student test scores is virtually drawing conclusions about what teachers should do is well taken. But the same criticism could be drawn about any descriptive study that focuses on some aspects of the classroom (e.g., teacher-student interactions, student language) and omits others (e.g., teacher planning outside the classroom, interactions among different teachers).

The fact that ethnographic studies are detailed may tend to focus the discussion on elaboration and interpretation of that detail, rather than on the questions of the proper aims of school and the other possible ways in which the classroom might have existed. That tendency would be a weakness in the ethnographic approach. Limiting details may make some sorts of discussion more difficult, but that difficulty may be an example of not taking the easy way out--forcing discussion to move to other, and perhaps more important, areas.

The vividness of ethnographic studies is a two-edged sword. The vividness may be compelling, but reliance on vividness of what happens to be reported makes it uncertain what direction the compulsion will push in. The consideration is "What about a research report will be compelling and how can the writer or teacher educator compel change in belief in worthwhile directions?" Thinking in terms of compelling detail leaves control of the direction of change up to what happened in the classrooms studied. Thinking

in terms of rhetoric highlights the case the researcher wants to make and lays open a wider variety of ways research results might be made compelling.

The Vanishing Role of the Teacher Educator

The chief question to be raised about the recommendations for discussion and conversation (rather than training) is whether these suggestions go too far in removing researchers and teacher educators from the role of drawing conclusions to be accepted by teachers. Fenstermacher's and Zumwalt's suggestion that teachers might or might not change their own beliefs when presented with research that contradicts them is both admirable and troubling. It is admirable because it acknowledges that research conclusions are uncertain and that teachers, especially experienced teachers, have knowledge that should be properly credited. It is troubling because it leaves unclear how decisions to change will be made and seems to shift the burden of deciding what to do entirely from the researcher to the teacher.

As Buchmann (1983b) has argued in a different context, teacher knowledge is not knowledge unless there are checks on the validity of beliefs. A strength of research is its incorporation of systematic tests of individual beliefs, tests that are not part of the everyday habits of individuals. While it is probably true that most experienced teachers have considerable wisdom about teaching and learning, it is probably also true that they are wrong about some of the things they think they have learned from their experience. (For further discussions of the problems of overemphasis on learning from experience, see Buchmann & Schwille, 1983; Feiman-Nemser & Buchmann, 1983; Floden, Buchmann, & Schwille, 1984).

What is not prominently present in these proposals is the guiding role of the teacher educator. Education is not brought about merely by encouraging

discussion and probing. Guidance must be given in seeing the difference between well-grounded discussion and loose talk and between conclusions that are better supported and less well supported by the data.

How the goodness of conversations is to be judged is a question for which Buchmann offers suggestions, not clear answers. What makes a conversation attractive is its reciprocal quality and the surprising turns it may take. Comments must be relevant to the general topic but need not follow any narrow logical progression. Those who talk to inflate their own importance detract from a conversation rather than add to it.

Buchmann's analysis to date, however, is stronger on pointing to the problem than on providing the solution. Conversations themselves have difficulties. Though lack of clarity and focus does not preclude useful verbal interchanges, it does make it more difficult to sort the erroneous ideas from the muddled but proper convictions. Doing that requires removing some lack of clarity and filling some gaps in chains of reasoning. That takes effort, and it may be that the reconstructed line of thinking will not do justice to its incomplete ancestor. If the final version is of value, the question of faithful representation may be of little interest, but it is worth asking whether starting with conversation is the best way to search for truth.

Buchmann's analysis leaves some question about how the quality of conversations should be judged. In specifying criteria, a dilemma may arise because of the wish to avoid both an instrumental definition of value (i.e., good conversations are those that lead to improved teacher or researcher performance) and an affect definition (i.e., good conversations are those that make the participants happy). The first tends to sound like the research-into-practice view that Buchmann rejects, although perhaps it can be recast in terms of rationality or educational goals. The second is clearly of value to

the participants as individuals but leaves doubts about the value to them as teachers or researchers.

Education does allow for intending to change minds in specific ways. The restriction is on how this is done, not that it is done. Teacher educators (and researchers wishing to educate their audience of teachers) can legitimately draw conclusions and try to get teachers to accept those conclusions. What a focus on education rather than training prohibits is (a) doing this in a way that decreases teachers' ability to reason about education and (b) doing it in a way that does not allow teachers to find out about the reasons behind the conclusions.

Attempting to change teachers' minds in an educative way is especially difficult for researchers, whose medium of communication with most teachers is the written word. It is argued that articles written to describe research to teachers tend not to be educative but, instead, prescriptive of specific behaviors. If this is true, the reason may be that researchers have believed that the only way to get teachers to learn from research is to present them with simple conclusions, leaving the derivation of those conclusions from the evidence to the researchers. This orientation amounts to a research-based training approach in written form.

But how can researchers write so as to persuade teachers to accept conclusions the researchers believe well justified and also to acknowledge the rationality of teachers (i.e., to educate rather than to train)? One might think, on consideration of the proposals for discussion and conversation, that the written form makes the goal unattainable. Is there a way?

Fenstermacher (1979) has hit on something important in advocating that researchers find out about teachers' beliefs, although his idea is partially misdirected. Fenstermacher uses several examples to show that current beliefs

have an effect on the way in which evidence presented will act to change subjective beliefs. The examples demonstrate that beliefs about the credibility of evidence or the value of the goals to be attained may affect the impact that evidence can have on the transformation of beliefs about which teaching practices should be undertaken. From this, Fenstermacher continues, it follows that one must know what teachers believe before one can change their beliefs. In particular, the beliefs researchers need to know about are those that teachers have about the kinds of practices that produce student success at specified learning tasks.

Fenstermacher is right in pointing to the importance of considering teachers' beliefs. But it is not necessary that researchers know what teachers think, for example, about how to praise students before they can provide educative arguments. Much transformation can proceed without knowledge of teachers' subjectively reasonable beliefs. Such transformation presumably occurs in many educational settings, such as graduate seminars in education, without first discovering the beliefs of all the students present. Although transformation may sometimes be blocked because of lack of credibility of evidence or a failure to address topics of interest, it is probably successful much of the time.

The beliefs that seem most relevant are not those Fenstermacher suggests discovering. Rather than finding out what causal links teachers currently believe in, we should, as Fenstermacher's own examples suggest, find out about the beliefs concerning the credibility of evidence or the goals considered worthwhile. It is a principle of rhetoric that to persuade you must begin at a place where you and your audience agree. This kind of beginning need not require exact knowledge of what the audience thinks but does require a sense of where there are points of agreement. For an audience of teachers, it may

be especially important to consider what sorts of evidence they initially find credible and what view of schooling goals they hold.

Knowledge of teachers' subjective beliefs about the effectiveness of various teaching practices may also prove useful for transforming their beliefs using research results. The investigation of teacher beliefs about the causal links between their practice and student learning is the direction in which Fenstermacher thinks research on teaching should go. Although I have argued above that such research is not a prerequisite for operation of the transformation schema, it may provide useful pedagogical tools. If teacher educators knows what teachers initially believe, they may take pains to discredit those initial beliefs or to show how their plausibility is attributable to relationships not previously considered. Just as doctors may have been persuaded that their practice of insisting on closed windows had some value because it kept out disease-carrying mosquitos, rather than bad night air, so teachers may be led to see which aspects of their practice are valuable and hence to alter the others.

Changing an Audience's Mind

When addressed to an audience of teachers and other school workers, reports of research on teaching are attempts to change minds. If research reports are to persuade, report authors need to keep the persuasiveness of their presentation in mind. This need suggests attention to the devices of rhetoric used in writing a report.

The thought that considerations of rhetoric are important in writing research reports may seem scandalous to some researchers. Rhetoric conjures up images of the Sophists and current associations with political propaganda and advertising. Reports of scientific studies of teaching are seen as

neutral portrayals of research procedures, objective results, and the conclusions that can be logically derived from these results.

Although, inspired by the logical positivists, behavioral psychologists tried to remove all choice and ambiguity from social research (Mackenzie, 1977), whatever success they achieved was at the cost of putting aside many educationally interesting questions. Research on teaching, from problem formulation, through study design, to preparation of conclusions and inclinations, is filled with choice, indefiniteness, and ambiguity. Any study may be presented and interpreted in more than one way, and the choice of presentation cannot be determined by strictly logical means. Because research conclusions cannot be derived in a strictly logical way from the set of events that make up a study of teaching, a research report is an informal argument rather than a proof. If the reader is to accept the conclusions of the research, the argument must persuade that reader. Rhetoric is the field that gives serious consideration to the persuasive nature of arguments.

Gusfield (1981) has considered the use of rhetoric in the reports of research on drivers who drink. This research, like research on teaching, is conducted with a view toward addressing a salient social concern. It is also similar in the ambiguity of key concepts: drunkenness in the one case and effective teaching in the other.

Gusfield shows that research has tried to support a view of the problem in which the primary fault is placed on the driver. The audience is to be persuaded that action should be taken to change the actions of drivers who drink, those who are to blame for unnecessary traffic deaths. Hidden are the possibilities that these drivers may not be at fault, either because of the uncertain inferences from available evidence (and these inferences are indeed uncertain) or because the blame (and hence the solution) lies with the way

roads and automobiles are constructed. An effectively hidden approach to reducing traffic fatalities is that of building automobiles on the assumption that accidents will occasionally happen (perhaps as a result of drinking, perhaps through ordinary inattention).

The scientific style of writing itself is a rhetorical device that tends to persuade the reader that the events reported admit of only one interpretation. By following a format that emphasizes technical procedures of data collection and analysis, the report creates the false impression that the researcher as a person did not make choices about how to interpret the evidence. Literature reviews can even create the impression that the problem itself was impartially determined. Ending a research report with a "conclusions" or "implications" section shows that the author thinks that substantive propositions have been demonstrated (or perhaps only suggested). In many reports, introductions and summary statements about the contribution of the study to the field clearly suggest that the author wishes to persuade the reader of the conclusions drawn. The rhetorical device of persuasion is that of making it seem as if the facts speak for themselves.

> That that author means to convince his audience of certain conclusions is both evident and explicit. The importance of method substantiates the overall style of detachment. He means to convince, but not to persuade, by presenting an external world to the audience and allowing that external reality to do the convincing. Thus the language must be emptied of feeling and emotion. The tone must be clinical, detached, depersonalized. (Gusfield, 1981, p. 90)

Is Using Rhetoric for Changing Teachers' Minds Defensible?

Bringing to consciousness the role of rhetoric in the presentation (to different audiences) of reports of research on teaching may make writers more conscious of their use of language. It also, however, raises the spectre of Machiavellian manipulation of teachers. Research on teaching does not

(perhaps cannot) produce certain and immutable prescriptions for action, yet teachers must act in some way. If researchers feel that the weight of the evidence indicates that a particular change would be desirable, what persuasive rhetorical devices are they justified in using to try to persuade teachers to make that change?

Those who have felt that science should be free from rhetoric might contend that the fact that there is a question about which rhetorical devices are legitimate confirms their initial belief that research reporting should be free from rhetoric. "The facts of the case should be impartially presented," they might say, "so that the readers can see for themselves the conclusions that can be drawn." The alert reader will already see the flaw in their argument. An impartial presentation of the facts is, in an important sense, impossible. An experiment can be described in many ways, each of them necessarily incomplete. A choice must be made among these descriptions. Furthermore, the language chosen makes a difference, both in the likelihood that readers will be affected by the report and in the way the report will be interpreted. As indicated earlier, choosing an "impartial" writing style is a rhetorical decision, which carries persuasive weight through the impression it gives and which tends to make the world seem simpler and more completely determined than is probably warranted.

Because any way of reporting research on teaching involves rhetoric, the question is not *whether* it is defensible to use rhetoric in reporting such research but *what* uses of rhetoric are defensible. A productive way of looking at what might be indefensible is to return to the criticisms of Buchmann, Fenstermacher, and Zumwalt. They found fault with approaches in which teachers were told what to do because these approaches, although perhaps persuasive, do not acknowledge the rationality of teachers and placed the

researchers in an undeservedly superior position. These approaches imply that teachers are not able to assess the worth of what they were being told. What they criticize is just what Gusfield (1981) describes as the consequence of the "impartial" style of scientific reporting. By making their research sound objective and carefully conducted, researchers on teaching create the impression that the results are certain and simple, that great faith can be placed in the results, and that the way the research has conceived the world is the only possible one. Hence what these critics are advocating is a change from the current choice of rhetoric in research on teaching.

But what rhetorical devices can be substituted and why? The changes they describe involve a shift in the ratio of audience authority to author authority (Gusfield, 1981, p. 92). Researchers writing for teachers often assume greater authority than the audience, suggesting that the researcher has found something which will be given to the audience. The critics suggest greater equality would be more desirable. When researchers write for other researchers, they often assume a sort of equality, presenting the study, documenting the methods, and creating the impression that the audience can see just as well as the authors how the conclusions follow from the evidence. The author seems to say, "I'll tell you just what was done. 'We will reason together and achieve a consensus through fact and reason. You, as a rational person, cannot but reach the same conclusion as I'" (Gusfield, 1981, p. 92). But this apparent equality is illusory and not what the critics would hope to create. The author still retains greater authority through deciding how to (selectively) present what was done and through leading toward a particular set of conclusions. True equality is even more questionable if knowledge of research methods and concepts is not equally shared between reader and

audience--a situation that would typically be the case if teachers were to read such articles.

The critics wish to create a more truly equal ratio between research writer and teacher reader. They wish the readers to consider the evidence, discuss it with others, and draw their own conclusions. Perhaps the rhetorical style of presentation they would prefer would be one in which the author presumes less authority than the reader for drawing conclusions, presenting what happened in the research without trying to persuade the reader that anything follows from the research. Buchmann's suggestion of conversation as the model for the relationship between research and practice would be consistent with the idea that the researcher should attempt not to persuade, but only to offer evidence (or thoughts) for consideration. The author's goal would be to contribute to the ongoing conversation rather than to change teachers' minds in a particular way. Fenstermacher and Zumwalt have more definite goals of developing in teachers the ability to be more thoughtful about education or to give teachers new concepts with which to think about teaching and education. But they both wish to abandon the idea that teachers should be brought to believe the conclusions researchers draw from their work. All three seem to advocate abandonment of the goal of persuasion; rhetoric might be used to help the audience of teachers understand what was done in the research, but not to persuade teachers to accept the conclusions of research.

Is this abandonment of the goal of persuasion the only defensible approach to the rhetoric of research? To put it more dramatically, is no value to be given to the researcher's ability to draw conclusions from research? A good case can be made that research on teaching can contribute to

the education of teachers while still trying to persuade teachers to come to believe the conclusions researchers have drawn from their work.

Arguably, the most important difference between training and education is that in education the student must come to hold the new beliefs for reasons that are both sound and thought by the student to be good reasons. Furthermore, to the extent appropriate to the student's current stage of intellectual growth, the reasons are the same ones the teacher would use to justify the new beliefs. This means that, again to the extent appropriate (a crucial but necessarily vague phrase), the teacher must be ready to answer students' questions about why beliefs should be held. This requirement of giving students good reasons for what they believe generally rules out training based solely on appeals to authority ("You should believe this because research has shown it to be true.") or based on attempts to persuade that do not carry the provision of good grounds for holding the conclusions.

So far this is consistent with the criticisms of Buchmann, Fenstermacher, and Zumwalt. But the requirement does not require that students be given only the reasons (without the conclusions), nor does it imply that only the power of reason can be used in getting students to hold beliefs for good reasons. The charismatic power of some lecturers can be drawn on legitimately in education, provided that charisma is not the only means of persuasion, that the lecturer is open (where appropriate) to communicating the grounds of his or her beliefs to the students, and that the students come to have good reasons for the beliefs they hold.

What this means for researchers on teaching is that the aim of persuading teachers to accept research conclusions drawn by researchers can be a part of education as long as it is neither an attempt to get teachers to accept only the conclusions (apart from the good reasons for accepting the conclusions)

nor a process in which the researcher is unwilling to address questions the teachers may have about the grounds for belief.

The latter requirement is, for two reasons, problematic for the case of reporting research on teaching to teachers. In the first place, the medium for reporting may preclude (or at least require reinterpreting) the possibility that teachers can raise such questions. If the report is written, communication with the author is difficult, and the report itself must in some way anticipate such questions and allow the teacher to have them answered, perhaps by addressing them explicitly in the paper, perhaps by providing easy access to sources from which they may be answered. In the second place, the habits developed through past interactions between researchers and teachers will not incline teachers to ask questions. Their expectation is to be told what research has found to be true, not to raise questions about why they should believe research claims.

This is, however, a problem to be addressed in itself, not a reason why researchers must refrain from trying to persuade teachers to accept particular conclusions. Researchers can contribute more than concepts, data, and viewpoints (each of these can still be of value) and still avoid enforcing a narrow vision of schools and teaching.

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